IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	
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Cormac Herley	)	Group Art Unit: 2612
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Application No.: 09/126,622	)	Examiner: Ngoc Yen T Vu
	)	
Filed: July 30, 1998	)	Confirmation No.: 9131
	)	
For: PROCESSING IMAGES IN A DIGITAL CAMERA (as amended)	)	

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated March 11, 2004, reconsideration and allowance of the present application are respectfully requested. Claims 11-17, 19-25 and 27-32 remain pending, of which claims 14, 22 and 29 are independent. Claims 1-10, 18 and 26 had previously been canceled.

In the Office Action, claims 11-17, 19-25 and 27-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,181,826 (Weldy) in view of U.S. Patent No. 6,263,106 (Yamagata). On page 3 of the Office Action, the Examiner acknowledges shortcomings of the Weldy patent, but asserts that the Yamagata patent overcomes these shortcomings. More particularly, beginning with the last full sentence on page 3 of the Office Action, the Examiner asserts:

> For the purpose of storing additional image data files when insufficient space is available, Yamagata further teaches means for releasing space used to store compressed image data to store additional image data (Figs. 10-12; col. 10 line 16-col. 12 line 33). In light of the teaching from Yamagata, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the system of processing digital images taught in Weldy in a digital camera in order to provide images having different compressed resolutions as desired by the user. Furthermore, in light of the teaching from Yamagata, it would have been obvious to one of ordinary skill in the art to modify the system of processing images in a digital camera taught in Weldy by storing the compressed image data in primary and secondary storage areas and permitting releasing space in the secondary storage area in order to store additional image data, thus ensuring that no images are lost due to the lack of capacity in the storage areas.

This reasoning of the Examiner is flawed, as neither of the documents relied upon by the Examiner teach or suggest releasing only a portion of compressed image data associated with a raw image, as is presently claimed.

Independent claims 14, 22 and 29 recite, among other features, releasing space in a secondary storage area used to store "the second compressed image data set". The second compressed image data set is data that can be combined with a first compressed image data set to reproduce substantially the entire image at a second, higher quality level. The space is released when insufficient space is available in a primary storage area to store "the first compressed image data set". Such releasing of data is not taught or suggested in the documents relied upon by the Examiner.

Claim 14 specifically recites releasing space used to store the second compressed image data set (i.e., a compressed image data set for reproducing an image with a higher quality level), when insufficient space is available in a primary storage area to store a first

compressed image data set for reproducing the image at a first (i.e., lower) quality level. Independent claims 22 and 29 recite similar features.

Exemplary embodiments of the present invention are directed to selectively "releasing" a portion of compressed data associated with an image under specific conditions. The documents relied upon by the Examiner simply do not teach or suggest that a portion of compressed image data generated from an input image should be separately stored and selectively released.

As described on page 2 of Applicant's specification, exemplary embodiments of the present invention perform image compression on an image using first and second image data quantizations to produce two different data sets relating to the same image: a primary compressed data set and an auxiliary compressed data set. The primary compressed data set is sufficient to reproduce the image at a first quality level. However, the primary and auxiliary data sets can be combined to reproduce the same image with a higher quality level (i.e., high resolution).

As subsequent images are captured, primary and auxiliary data sets are generated for each image. Each primary data set is stored in a primary storage area. Each auxiliary data set is stored in a secondary storage area. When the primary storage area becomes filled, space in the secondary storage area containing auxiliary data sets is released to store additional primary data sets. Thus, exemplary embodiments of the present invention add intelligence to the manner by which compressed digital image data is stored in and/or released from a memory used to store multiple compressed image data sets for a given image.

The foregoing features are broadly encompassed by Applicant's independent claim 14. Claim 14 is directed to a method for processing images in a digital camera wherein the digital camera includes an image storage device having primary and secondary storage areas. The method recites generating from a raw image, including employing a first quantizing step, a first compressed image data set suitable for reproducing substantially the entire image at a first quality level. The first compressed image data set is stored in the primary storage area.

Claim 14 also recites generating from the raw image, including employing a second quantizing step independent of the first quantizing step, a second compressed image data set which when combined with the first compressed image data set reproduces substantially the entire image at a second, higher quality level. The second compressed image data set is stored in the secondary storage area. In accordance with the claim 14 method, space in the secondary storage area of the image storage device used to store the second compressed image data set is **released** to store the first compressed image data set when insufficient space is available in the primary storage area of the image storage device used to store the first compressed image data set.

Neither of the patents to Weldy or Yamagata, even when considered in the combination relied upon by the Examiner, teach or suggest such a method. The Examiner's rejection fails to establish a prima facie case of obviousness because neither of the documents relied upon teach or suggest that only a portion of compressed image data associated with an image should be released from memory in favor of another portion of compressed image data for a different image.

Although the Weldy patent discloses using two M/2 quantization level images for an M level image, there is no teaching or suggestion to release data associated with only one of the two M/2 images from memory under specific conditions. The Weldy patent is directed to reconstructing an M level image by forming at least two non-dependent digital images from an original digital image. The two non-dependent images are formed by quantizing an original M level image to two M/2 level images, one being rounded down in value and the other being rounded up in value (see Abstract). An image having a higher resolution than either of the non-dependent M/2 digital images can be formed by combining and averaging the non-dependent images. As shown in Figure 1 of the Weldy patent, the digital images can be written onto a compact disk by a CD writer 5. A CD player 7 is used to read selected images from the compact disk and to reconstruct and to forward the selected images for display on a standard TV display 8, a thermal printer 9, or a computer monitor.

Column 3, lines 31-45 of the Weldy patent describe the receipt of a digitized image from a scanner 3 having high resolution which permits certain printers to print images that correspond to photographic quality originals. This portion of the Weldy specification describes that by manipulating the images through a hierarchical residual based scheme, a number of images of differing resolution levels can be generated and written on the compact disk. Portions of the specification such as column 7, lines 63-67 describe storing representations of images quantized using different quantizers for purposes of reconstructing the image for viewing or printing. However, the Weldy patent does not teach or suggest selectively releasing only a portion of compressed image data associated

with an image so that a different portion of compressed image data associated with another image can be stored.

The Yamagata patent fails to overcome the deficiencies noted with respect to the Weldy patent. The Yamagata patent is directed to an image data compression device wherein a number of image data files recorded by the image data compression device are stored in a memory card either uncompressed, in a low-compression format, or in a high-compression format (see Abstract). As described in the Summary of the Yamagata patent, an object is to enable a user to select image data that is inhibited from being compressed. This patent describes using data flags associated with image data files, where the data flags are set at the time of recording. The compression of a recorded image data file is inhibited if an associated flag has a predetermined status. Image data files which are already recorded in the recording medium can be compressed to a next higher level of compression to increase remaining capacity, as described in the Summary of this patent. The Yamagata patent performs a data compression operation to free memory, and does not teach or suggest releasing a portion of compressed image data associated with an image so that a different portion of compressed image data associated with another image can be stored.

Thus, there would have been no motivation or suggestion to have used a quantization technique, as described in the Weldy patent, with the features described in the Yamagata patent to arrive at the presently claimed invention. Moreover, even if the Weldy and Yamagata patents could have somehow been combined in a manner suggested by the Examiner, the presently claimed invention would not have resulted.

The Weldy and Yamagata patents do not teach or suggest **releasing** space used to store a "second compressed image data set" when insufficient space is available in a primary storage area of the image storage device to store a "first compressed image data set", as recited in Applicants' independent claim 14. That is, neither of the documents relied upon by the Examiner, considered individually or in combination, teach or suggest generating a first compressed image data set (using a first quantizing step), for producing substantially the entire image at a first quality level, the first compressed image data set being stored in a primary storage area; a second compressed image data set which when combined with the first compressed image data set reproduce substantially the entire image at a second, higher quality level, the second compressed image set being stored in the secondary storage area; and releasing space used to store the second compressed image data set in the secondary storage area to store the first compressed image data when insufficient space is available in the primary storage area.

Independent claim 14 is therefore allowable over the Weldy and Yamagata patents. Independent claims 22 and 29 recite similar features and are also allowable. The remaining claims depend from these three independent claims and are further considered allowable.

All rejections and objections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

HEWLETT-PACKARD

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